

**Brief Report**  
**CPS Research Symposium 26 and 27<sup>th</sup> June 2013**  
**Wegman's Conference Centre, Rochester, NY State**  
**By Dr. Robyn McConchie**

The CPS at the University of Davis has been very supportive of the initiatives in Australia to establish an affiliated Fresh Produce Safety Centre. Over the past year they have very generously shared their research outcomes, they have given presentations to our industry, and this year invited Australian researchers to apply for research grants to work collaboratively with US scientists on issues important for the Australian fruit and vegetable industry.

As part of the ongoing collaboration Dr Robyn McConchie from the University of Sydney was invited to take part in a panel session at the recent 2013 CPS Research Symposium held at Wegman's Conference Centre in Rochester, NY State. This year, due to the increasing awareness and interest from the US industry, the Research Symposium was held over 2 days. The first day was devoted to reviewing "*CPS: The First Five Years and the Road Ahead*" and a review session on "*Listeria and Produce: What You Need to Know and Lessons Learned to Help Manage the Risks*". The second day was devoted to project reports on "*Composts and Ag Practices/ Pathogen Survival*", "*Water Quality for Irrigation and Postharvest Practices*", "*Pathogen transference: Pre-harvest, harvest and Packaging.*" And "*Hot Topics.*"

Below is a summary of the key messages from the Symposium on *Listeria monocytogenes* and composting.

***"Listeria and Produce: What You Need to Know and Lessons Learned to Help Manage the Risk"***

- Listeriosis is caused by the bacterium *Listeria monocytogenes* (LM) and affects mainly the elderly, the immuno compromised and pregnant women.
- Listeriosis has a long incubation period and it can take between 7- 60 days to see symptoms of illness.
- Cases in the US have been linked to coleslaw, sprouts, diced celery, bagged spinach and most recently cantaloupe in 2011, causing 23 deaths. (In Australia very few cases reported but has been found in salads.)
- *Listeria spp.* can be introduced from a wide range of sources e.g. soil, animals and contamination can occur throughout the chain.
- Lessons from the diary, meat and fish processing industries show it can survive up to 12 years; it grows at ambient and refrigeration temperatures and is very difficult to eliminate.
- LM lives in wet and damp areas such as preparation areas, drains, slicers and processing equipment, floor mats and even in sanitized foot baths.

- Essential to employ a rigorous **Seek** (Environmental testing) and **Destroy** (Sanitation) strategy if you get a positive result for presence of LM as it is a very resilient pathogen.
- Case studies from the meat and seafood industry show a need to do a complete overhaul of workplace design to eliminate cracks, niches. These show important lessons for the fruit and vegetable industry especially where product is processed.
- Separate unprepared product and ready to eat food and do not allow movement of staff or equipment across the boundary. Listeria is carried on shoes, aprons, gloves and staff.
- Dr Martin Weidman and his team from Cornell University in the US have resources on their website for staff training on hygiene and tips for cleaning <http://foodscience.cornell.edu/cals/foodsci/research/labs/wiedmann/listeria-employee-training-program.cfm>

### ***“Composts and Ag Practices/ Pathogen Survival”***

- The use of heated chicken pellets as organic fertiliser has increased since they are more convenient to handle and apply.
- These manures are a potential source of Salmonella, however heating during the processing has potential to kill the bacteria.
- Research by Dr Xiuping Jiang, from Clemson University shows that desiccation adapted Salmonella can be resistant to the heat process. To combat this resistance, increasing the chicken litter moisture and temperature during treatment reduces the time required to get 100,000 fold reduction in desiccation adapted Salmonella. Heating to 150°C for 1 hr results in a million fold reduction in desiccation adapted Salmonella.
- Lessons are that suppliers need to validate their processes for time, temperature and moisture, and verify via product testing. Suppliers and end product users of chicken pellets also need to ensure proper handling and storage to prevent reinfection.
- Dr Manan Sharma, Agricultural Research Service, USDA showed that the EPA methods for recovering naturally occurring and inoculated Salmonella and *E coli* in composts were better than the TMECC methods – check what your testing lab uses to detect these pathogens.
- Dr Steven Koike, UC Cooperative Extension investigated of *E. coli* survival on contaminated crop residue and found that Salmonella persists longer than *E coli* in the field by 8 days. He also noted that pathogen survival is lower if, after the crop residue is chopped mowed or rolled, the residues is left to dry off before incorporating into the soil.
- Dr Jitendra Patel, Agricultural Research Service, USDA, reported there is potential to use broccoli in crop rotations as glucosinolates in the ploughed in crops residues have potential to kill Salmonella and *E.coli*. Glucosinolate levels varied between broccoli cultivars and plant parts such as roots and shoots.

More summaries will be available on the remaining topics in the next issue. For further information contact Dr Robyn McConchie [robyn.mcconchie@sydney.edu.au](mailto:robyn.mcconchie@sydney.edu.au)